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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,630	02/15/2002	Ralf Wolleschensky	GK-ZEI-3154 / 500343.2015	2867

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EXAMINER

LYONS, MICHAEL A

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/077,630

Applicant(s)

WOLLESCHEFSKY ET AL.

Examiner

Michael A. Lyons

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 18-32 is/are rejected.
- 7) ☒ Claim(s) 33 and 34 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 27 is objected to because of the following informalities: there is a misplaced comma before the word method in line 1 of the claim. Appropriate correction is required.

Claims 33-34 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claims are written in a way that they read as a method claim contained within an apparatus claim. This structure makes the claims confusing; therefore, they have not been treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 18-19 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Yoshida (6,018,391).

Regarding claim 18, Yoshida (Fig. 4) discloses an interferometer arrangement (entire figure) with an optical modulator 4p in the form of a frequency shifter provided in an arm of the Mach-Zehnder interferometer.

As for claim 19, frequency shifter 4p is located in the measuring arm of the interferometer, as the light passing through that particular element strikes specimen 21 that is in the device to be measured.

Claim 32 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by Kessler et al (6,434,291).

Regarding claim 32, Kessler (Fig. 3) discloses a device containing a first dispersive optical element 130 for splitting light into its spectral component parts, a lens 140 for imaging the spectral parts, a spatial light modulator 150 as a light manipulator, and a second dispersive optical element 370 for the recombination of the split light into its original form.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 20-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida (6,018,391) in view of Lewin (6,084,672) and in further view of Schoeppe et al (6,167,173).

As for claim 21, Yoshida (Fig. 4) discloses an interferometer arrangement with a reference arm containing frequency shifter 4r. Yoshida, however, fails to disclose the use of the interferometer's measuring arm as the illumination beam of a laser-scanning microscope.

Lewin discloses a device where the measuring beam of an interferometer is used as the input beam path of a microscope (abstract). While this microscope is not a laser-scanning microscope, Schoeppe's disclosure reveals the entire laser-scanning microscope as shown in the current application, making the device known to one skilled in the art. Therefore, it would have

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been obvious to one of ordinary skill in the art at the time the invention was made to use the measuring arm of Yoshida's interferometer as the input beam for the laser-scanning microscope of Schoeppe as taught by Lewin's disclosure of the measuring arm of an interferometer being the input light beam for a microscope.

As for claim 20, the combination of Yoshida's interferometer with a laser-scanning microscope is disclosed above. The use of a modulator for beam attenuation is well known.

As for claim 22, using a detector or analyzer to demodulate a measured signal is well known.

As for claim 23, the use of a short-pulse laser in an interferometer is well known.

As for claim 24, the use of a laser to excite multiple photons in a material is well known.

As for claim 25, the use of an acousto-optic modulator for frequency or other light modulation is well known.

As for claim 26, the use of retroreflectors to change a path length is well known.

As for claim 27, the combination of the interferometer of Yoshida with the laser-scanning microscope of Schoeppe as per Lewin is disclosed above. The objective lens 4 in Figure 1 of Schoeppe can be used to focus and fluorescent radiation generated by fluorescence microscopy (Col. 3, lines 49-52), and the modulation of a frequency of light in an interferometer arm of the device of Yoshida will generate a heterodyne signal when interfered with either an unmodulated or modulated reference signal. The above combination will therefore generate a heterodyne signal in the microscope as well.

As for claims 28 and 29, the simultaneous recording of signals, and any subsequent superimposition, is well known.

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As for claims 30 and 31, the use of reference points to orient a specimen to a desired location or orientation is well known.

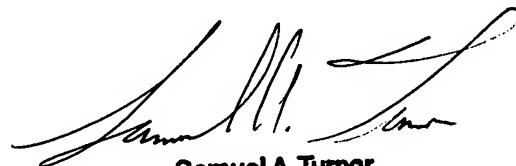
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 703-305-1933.

The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on 703-308-4877. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0725 for regular communications and 703-308-0725 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0935.

MAL
July 15, 2003



Samuel A. Turner
Primary Examiner